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10/809,812	03/26/2004	Kunihiko Kanai	524642002200	7944

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Barry E. Bretschneider
Morrison & Foerster LLP
Suite 300
1650 Tysons Boulevard
McLean, VA 22102

EXAMINER	
CUTLER, ALBERT H	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/809,812	Applicant(s) KANAI, KUNIHIKO	
	Examiner Albert H. Cutler	Art Unit 2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 17 August 2007.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1,2 and 4-16 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1,2 and 4-16 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is responsive to communication filed on August 17, 2007.

Response to Arguments

2. Applicant's arguments, see pages 7-9, filed August 17, 2007, with respect to the rejection(s) of claim(s) 12 and 15 under 35 U.S.C. 102(b) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Rosenqvist et al.(US 6,590,612).

3. Applicant's arguments with respect to claims 1 and 7 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 7, 8, 9, 10/7, 10/8, 10/9, 12 and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Rosenqvist et al.(US 6,590,612).

Consider claim 7, Rosenqvist et al. teach:

A focusing device(figure 2), comprising:

an image pickup device(32), an optical system(80) for forming an image on said image pickup device(column 4, lines 51-67), an optical system driver(98) for changing the focal length of said optical system(column 4, line 60 through column 5, line 51), and an image processor(66) for processing image data output from said image pickup device(32, column 2, lines 8-19, figure 2) and controlling said optical system driver(98, column 4, line 60 through column 5, line 51. As the optical system driver(98) controls a portion of the overall image processing of the device in figure 2, it must be controlled by some type of image processor.), wherein the image processor is adapted to:

while changing the focal length of said optical system, obtain multiple image data selected from among image data of a plurality of color data(The focal length is changed, and frames for three different colors are "grabbed" and stored. A frame for each color, wherein that color is in the optimal focus position, is then stored and processed. See column 4, line 60 through column 6, line 43.), and

calculate a focal length from the obtained multiple image data using a peak value of contrast evaluated values of said multiple image data and a peak position which corresponds to a position of the peak value(column 5, lines 42-50, column 6, lines 31-38).

Consider claim 8, and as applied to claim 7 above, Rosenqvist et al. further teach:

the focusing device is provided with an operating means which enables the operator to perform by the operator's discretion weighting of the evaluated values of each image data of each respective color data that has been selected(Weightings can be chosen based on "trial and error", column 7, line 59 through column 8, line 20.).

Consider claim 9, and as applied to claim 7 above, Rosenqvist et al. further teach:

the image processor is adapted to automatically perform weighting of the evaluated values of each image data of each respective color data that has been selected based on conditions set for said each image data(The weights can be "calculated", column 7, line 59 through column 8, line 20.).

Consider claim 10, and as applied to claim 7 above, Rosenqvist et al. further teach that the focusing device is provided with an auxiliary light device(116, figure 3) for emitting light with given color data(column 6, line 45 through column 7, line 47).

Consider claim 10, and as applied to claim 8 above, Rosenqvist et al. further teach that the focusing device is provided with an auxiliary light device(116, figure 3) for emitting light with given color data(column 6, line 45 through column 7, line 47).

Consider claim 10, and as applied to claim 9 above, Rosenqvist et al. further teach that the focusing device is provided with an auxiliary light device(116, figure 3) for emitting light with given color data(column 6, line 45 through column 7, line 47).

Consider claim 12, Rosenqvist et al. teach:

using color data of a plurality of colors to detect a focal length for each respective color data and capturing an image at each focal length detected for each respective color data(The focal length is changed, and frames for three different colors are "grabbed" and stored. A frame for each color, wherein that color is in the optimal focus position, is then stored and processed. See column 4, line 60 through column 6, line 43, column 5, lines 42-50, column 6, lines 31-38.).

Consider claim 15, Rosenqvist et al. teach:

An image capturing apparatus(figure 2), comprising:

an image pickup device(32),

an optical system(80) for forming an image on said image pickup device(column 4, lines 51-67), an optical system driver(98) for changing the focal length of said optical system(column 4, line 60 through column 5, line 51), and an image processor(66) for processing image data output from said image pickup device(32, column 2, lines 8-19, figure 2) and controlling said optical system driver(98, column 4, line 60 through column 5, line 51. As the optical system driver(98) controls a portion of the overall image

processing of the device in figure 2, it must be controlled by some type of image processor.), wherein

the image processor is adapted to: obtain a plurality of image data of each respective color data while changing the focal length of said optical system, and calculate a focal length for each respective color data mentioned above by using the peak value of contrast evaluated values calculated from the obtained multiple image data, and perform image capturing at each focal length calculated for each respective color data(The focal length is changed, and frames for three different colors are "grabbed" and stored. A frame for each color, wherein that color is in the optimal focus position, is then stored and processed. See column 4, line 60 through column 6, line 43, column 5, lines 42-50, column 6, lines 31-38).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 1, 2, 4, 5/1, 5/2, 5/4 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rosenqvist et al. in view of Watanabe et al.(US 2003/0063212).

Consider claim 1, Rosenqvist et al. teach:

A method of detecting a focal length(column 4, line 60 through column 6, line 43), comprising:

obtaining, while changing the focal length of an optical system, multiple image data comprising a plurality of color data; and

calculating a focal length from the obtained multiple image data using a peak value of contrast evaluated values of said multiple image data and a peak position corresponding to a position of the peak value(The focal length is changed, and multiple frames for three different colors are "grabbed" and stored. A frame for each color, wherein that color is in the optimal focus position, is then stored and processed. See column 4, line 60 through column 6, line 43, column 5, lines 42-50, column 6, lines 31-38. The frame with the, "highest value of the focus function" is stored and processed, column 5, lines 42-45. The highest value of the focus function corresponds to the peak contrast.).

Rosenqvist et al. further teach of a light source(116, figure 3, column 6, line 44 through column 7, lines 47). However, Rosenqvist et al. do not explicitly teach that the multiple image data obtained comprises brightness data.

Watanabe et al. are similar to Rosenqvist et al. in that Watanabe et al. include a camera, which has a lens system with a driver for changing a focal length, and an image pickup device, see figure 1. Watanabe et al. is further similar in that focusing conditions are changed in order to find an optimum focus position(paragraph 0005).

However in addition to the teachings of Rosenqvist et al., Watanabe et al. teach that brightness data is obtained(S102, figure 2, paragraphs 0081 and 0082).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to obtain brightness data as taught by Watanabe et al. from the image sensor taught by Rosenqvist et al. for the benefit of being able to determine whether or not auxiliary illumination and/or a change in gain or sensitivity is needed to capture an image with a desired luminosity(Watanabe et al., paragraph 0082).

Consider claim 2, and as applied to claim 1 above, Rosenqvist et al. further teach:

weighting the evaluated values of each image data of each respective color data that has been selected is automatically performed based on conditions set for said each image data(The weights can be "calculated", column 7, line 59 through column 8, line 20.).

Consider claim 4, and as applied to claim 1 above, Rosenqvist et al. further teach:

providing a photographing mode for calculating a focal length by using only image data that consists of color data of a specific color selected based on a subject(See column 4, line 60 through column 5, line 50. The mode taught by Rosenqvist et al. comprises determining the focal length of a specific color in an image taken of(i.e. based on) a subject.).

Consider claim 5, and as applied to claim 1 above, Rosenqvist et al. further teach:

emitting auxiliary light(116, figure 3) with given color data when the image data is obtained(column 6, lines 44 through column 7, line 47), and performing weighting of the evaluated values of the color image data based on the color data of the emitted auxiliary light(See column 7, line 59 through column 8, line 20. Because the color images captured in the second embodiment(figure 3) are based on emitted light, the weighting of the color image data is also based on the emitted auxiliary light.).

Consider claim 5, and as applied to claim 2 above, Rosenqvist et al. further teach:

emitting auxiliary light(116, figure 3) with given color data when the image data is obtained(column 6, lines 44 through column 7, line 47), and performing weighting of the evaluated values of the color image data based on the color data of the emitted auxiliary light(See column 7, line 59 through column 8, line 20. Because the color images

captured in the second embodiment(figure 3) are based on emitted light, the weighting of the color image data is also based on the emitted auxiliary light.).

Consider claim 5, and as applied to claim 4 above, Rosenqvist et al. further teach:

emitting auxiliary light(116, figure 3) with given color data when the image data is obtained(column 6, lines 44 through column 7, line 47), and performing weighting of the evaluated values of the color image data based on the color data of the emitted auxiliary light(See column 7, line 59 through column 8, line 20. Because the color images captured in the second embodiment(figure 3) are based on emitted light, the weighting of the color image data is also based on the emitted auxiliary light.).

Consider claim 13, and as applied to claim 12 above, Rosenqvist et al. teach detecting focal lengths by using color data of a plurality of colors(see claim 12 rationale), and capturing images at the respected focal lengths that have been detected(see claim 12 rationale).

However, Rosenqvist et al. do not explicitly teach of simultaneously selecting a plurality of photographing modes can be selected, and detecting focal lengths for each one of the selected photographing modes.

Watanabe et al. are similar to Rosenqvist et al. in that Watanabe et al. include a camera, which has a lens system with a driver for changing a focal length, and an

image pickup device, see figure 1. Watanabe et al. is further similar in that focusing conditions are changed in order to find an optimum focus position(paragraph 0005).

However, in addition to the teachings of Rosenqvist et al., Watanabe et al. teach that a plurality of photographing modes can be selected, paragraphs 0071 and 0090. Watanabe et al. further teach of weighting the focus evaluation values(i.e. detecting the focal length) based on the selected photography mode, paragraphs 0090 and 0091.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to have a plurality of modes in which different focusing conditions are used as taught by Watanabe et al. in the image capturing method taught by Rosenqvist et al. in order to ensure that the subject of the image is properly focused and apply a greater weight to the portion of interest in the photograph(Watanabe et al., paragraphs 0018, 0090-0091).

9. Claims 6/1, 6/2, 6/4 and 14/13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rosenqvist et al. in view of Watanabe et al. as applied to claims 1, 2, 3 and 13 above, and further in view of Omata et al.(US 6,067,114).

Consider claim 6, and as applied to claim 1 above, Rosenqvist et al. teach of detecting focal lengths based on multiple image data(see claim 1 rationale), specifically of detecting a focal length for a peak value of contrast(see claim 1 rationale). However, the combination of Rosenqvist et al. and Watanabe et al. does not explicitly teach of a plurality of image detecting areas adjacent to one another.

Omata et al. is similar to Rosenqvist et al. in that Omata et al. include a camera, which has a lens system with a driver for changing a focal length, and an image pickup device, see figures 1 and 2. Omata et al. is further similar in that data from the image sensor can be used for focusing(column 1, lines 45-65).

However, in addition to the teachings of Rosenqvist et al. and Watanabe et al., Omata et al. teach of setting a plurality of image detecting areas adjacent to one another in obtained image data(see figure 5, column 3, lines 34-37),

calculating a partial focal length for each image detecting area(See column 3, lines 39-46, column 5, lines 8-18. A focus evaluation value(i.e. partial focal length) is calculated for each image detecting area.),

calculating the reliability of each image detecting area based on the position at which said peak value has been recorded moving across the multiple image data(The reliability of each image detecting area is determined by comparing the image detecting area to the surrounding image detecting areas, column 5, lines 18-44. See figure 6, block g(3,4) is judged reliable and used for focal length detection if the pixels around it are of the same object distance. This position correlates to the position of the maximum focus evaluation value(i.e. peak value), column 5, lines 32-36.), and

selecting a focal length from a group consisting of said partial focal lengths(column 5, lines 18-44) and at least one given focal length(A predetermined(i.e. given) focal length may be used to detect a depth of field, column 3, line 67 through column 4, line 3.), said focal length selected based on the reliability and the evaluated values of each respective image detecting area(See column 5, lines 18-44. Each image

detecting area is used to establish a focus evaluation value, and these values are compared to determine the reliability of the areas and use the appropriate one containing the main subject:).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to divide an image into a plurality of image detecting areas adjacent to one another and use the plurality of areas to determine focus values and reliability as taught by Omata et al., with the multiple image data captured by the combination of Rosenqvist et al. and Watanabe et al. for the benefit of being able to accurately detect a compositional change in an image so that a continuous focus can be achieved on a main object which an operator intends to focus(Omata et al., column 1, line 66 through column 2, line 2).

Consider claim 6, and as applied to claim 2 above, Rosenqvist et al. teach of detecting focal lengths based on multiple image data(see claim 1 rationale), specifically of detecting a focal length for a peak value of contrast(see claim 1 rationale). However, the combination of Rosenqvist et al. and Watanabe et al. does not explicitly teach of a plurality of image detecting areas adjacent to one another.

Omata et al. is similar to Rosenqvist et al. in that Omata et al. include a camera, which has a lens system with a driver for changing a focal length, and an image pickup device, see figures 1 and 2. Omata et al. is further similar in that data from the image sensor can be used for focusing(column 1, lines 45-65).

However, in addition to the teachings of Rosenqvist et al. and Watanabe et al., Omata et al. teach of setting a plurality of image detecting areas adjacent to one another in obtained image data(see figure 5, column 3, lines 34-37),

calculating a partial focal length for each image detecting area(See column 3, lines 39-46, column 5, lines 8-18. A focus evaluation value(i.e. partial focal length) is calculated for each image detecting area.),

calculating the reliability of each image detecting area based on the position at which said peak value has been recorded moving across the multiple image data(The reliability of each image detecting area is determined by comparing the image detecting area to the surrounding image detecting areas, column 5, lines 18-44. See figure 6, block g(3,4) is judged reliable and used for focal length detection if the pixels around it are of the same object distance. This position correlates to the position of the maximum focus evaluation value(i.e. peak value), column 5, lines 32-36.), and

selecting a focal length from a group consisting of said partial focal lengths(column 5, lines 18-44) and at least one given focal length(A predetermined(i.e. given) focal length may be used to detect a depth of field, column 3, line 67 through column 4, line 3.), said focal length selected based on the reliability and the evaluated values of each respective image detecting area(See column 5, lines 18-44. Each image detecting area is used to establish a focus evaluation value, and these values are compared to determine the reliability of the areas and use the appropriate one containing the main subject.).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to divide an image into a plurality of image detecting areas adjacent to one another and use the plurality of areas to determine focus values and reliability as taught by Omata et al., with the multiple image data captured by the combination of Rosenqvist et al. and Watanabe et al. for the benefit of being able to accurately detect a compositional change in an image so that a continuous focus can be achieved on a main object which an operator intends to focus(Omata et al., column 1, line 66 through column 2, line 2).

Consider claim 6, and as applied to claim 4 above, Rosenqvist et al. teach of detecting focal lengths based on multiple image data(see claim 1 rationale), specifically of detecting a focal length for a peak value of contrast(see claim 1 rationale). However, the combination of Rosenqvist et al. and Watanabe et al. does not explicitly teach of a plurality of image detecting areas adjacent to one another.

Omata et al. is similar to Rosenqvist et al. in that Omata et al. include a camera, which has a lens system with a driver for changing a focal length, and an image pickup device, see figures 1 and 2. Omata et al. is further similar in that data from the image sensor can be used for focusing(column 1, lines 45-65).

However, in addition to the teachings of Rosenqvist et al. and Watanabe et al., Omata et al. teach of setting a plurality of image detecting areas adjacent to one another in obtained image data(see figure 5, column 3, lines 34-37),

calculating a partial focal length for each image detecting area(See column 3, lines 39-46, column 5, lines 8-18. A focus evaluation value(i.e. partial focal length) is calculated for each image detecting area.),

calculating the reliability of each image detecting area based on the position at which said peak value has been recorded moving across the multiple image data(The reliability of each image detecting area is determined by comparing the image detecting area to the surrounding image detecting areas, column 5, lines 18-44. See figure 6, block g(3,4) is judged reliable and used for focal length detection if the pixels around it are of the same object distance. This position correlates to the position of the maximum focus evaluation value(i.e. peak value), column 5, lines 32-36.), and

selecting a focal length from a group consisting of said partial focal lengths(column 5, lines 18-44) and at least one given focal length(A predetermined(i.e. given) focal length may be used to detect a depth of field, column 3, line 67 through column 4, line 3.), said focal length selected based on the reliability and the evaluated values of each respective image detecting area(See column 5, lines 18-44. Each image detecting area is used to establish a focus evaluation value, and these values are compared to determine the reliability of the areas and use the appropriate one containing the main subject.).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to divide an image into a plurality of image detecting areas adjacent to one another and use the plurality of areas to determine focus values and reliability as taught by Omata et al., with the multiple image data captured by the

combination of Rosenqvist et al. and Watanabe et al. for the benefit of being able to accurately detect a compositional change in an image so that a continuous focus can be achieved on a main object which an operator intends to focus(Omata et al., column 1, line 66 through column 2, line 2).

Consider claim 14, and as applied to claim 13 above, Rosenqvist et al. teach of obtaining a plurality of image data of each respective color data while changing the focal length of the optical system(The focal length is changed, and frames for three different colors are "grabbed" and stored. A frame for each color, wherein that color is in the optimal focus position, is then stored and processed. See column 4, line 60 through column 6, line 43, column 5, lines 42-50, column 6, lines 31-38.). However, the combination of Rosenqvist et al. and Watanabe et al. does not explicitly teach of a plurality of image detecting areas adjacent to one another.

Omata et al. is similar to Rosenqvist et al. in that Omata et al. include a camera, which has a lens system with a driver for changing a focal length, and an image pickup device, see figures 1 and 2. Omata et al. is further similar in that data from the image sensor can be used for focusing(column 1, lines 45-65).

However, in addition to the teachings of Rosenqvist et al. and Watanabe et al., Omata et al. teach of setting a plurality of image detecting areas adjacent to one another in obtained image data(see figure 5, column 3, lines 34-37),

calculating a partial focal length for each image detecting area(See column 3, lines 39-46, column 5, lines 8-18. A focus evaluation value(i.e. partial focal length) is calculated for each image detecting area.),

calculating the reliability of each image detecting area based on the position at which said peak value has been recorded moving across the multiple image data(The reliability of each image detecting area is determined by comparing the image detecting area to the surrounding image detecting areas, column 5, lines 18-44. See figure 6, block g(3,4) is judged reliable and used for focal length detection if the pixels around it are of the same object distance. This position correlates to the position of the maximum focus evaluation value(i.e. peak value), column 5, lines 32-36.), and

selecting a focal length from a group consisting of said partial focal lengths(column 5, lines 18-44) and at least one given focal length(A predetermined(i.e. given) focal length may be used to detect a depth of field, column 3, line 67 through column 4, line 3.), said focal length selected based on the reliability and the evaluated values of each respective image detecting area(See column 5, lines 18-44. Each image detecting area is used to establish a focus evaluation value, and these values are compared to determine the reliability of the areas and use the appropriate one containing the main subject.).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to divide an image into a plurality of image detecting areas adjacent to one another and use the plurality of areas to determine focus values and reliability as taught by Omata et al., with the multiple image data captured by the

combination of Rosenqvist et al. and Watanabe et al. for the benefit of being able to accurately detect a compositional change in an image so that a continuous focus can be achieved on a main object which an operator intends to focus(Omata et al., column 1, line 66 through column 2, line 2).

10. Claims 11/7, 11/8, 11/9, and 14/12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rosenqvist et al. in view of Omata et al.(US 6,067,114).

Consider claim 11, and as applied to claim 7 above, Rosenqvist et al. teach of detecting focal lengths based on multiple image data(see claim 1 rationale), specifically of detecting a focal length for a peak value of contrast(see claim 1 rationale). However, Rosenqvist et al. do not explicitly teach of a plurality of image detecting areas adjacent to one another.

Omata et al. is similar to Rosenqvist et al. in that Omata et al. include a camera, which has a lens system with a driver for changing a focal length, and an image pickup device, see figures 1 and 2. Omata et al. is further similar in that data from the image sensor can be used for focusing(column 1, lines 45-65).

However, in addition to the teachings of Rosenqvist et al., Omata et al. teach of setting a plurality of image detecting areas adjacent to one another in obtained image data(see figure 5, column 3, lines 34-37),

calculating a partial focal length for each image detecting area(See column 3, lines 39-46, column 5, lines 8-18. A focus evaluation value(i.e. partial focal length) is calculated for each image detecting area.),

calculating the reliability of each image detecting area based on the position at which said peak value has been recorded moving across the multiple image data(The reliability of each image detecting area is determined by comparing the image detecting area to the surrounding image detecting areas, column 5, lines 18-44. See figure 6, block g(3,4) is judged reliable and used for focal length detection if the pixels around it are of the same object distance. This position correlates to the position of the maximum focus evaluation value(i.e. peak value), column 5, lines 32-36.), and

selecting a focal length from a group consisting of said partial focal lengths(column 5, lines 18-44) and at least one given focal length(A predetermined(i.e. given) focal length may be used to detect a depth of field, column 3, line 67 through column 4, line 3.), said focal length selected based on the reliability and the evaluated values of each respective image detecting area(See column 5, lines 18-44. Each image detecting area is used to establish a focus evaluation value, and these values are compared to determine the reliability of the areas and use the appropriate one containing the main subject.).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to divide an image into a plurality of image detecting areas adjacent to one another and use the plurality of areas to determine focus values and reliability as taught by Omata et al., with the multiple image data captured by

Rosenqvist et al. for the benefit of being able to accurately detect a compositional change in an image so that a continuous focus can be achieved on a main object which an operator intends to focus(Omata et al., column 1, line 66 through column 2, line 2).

Consider claim 11, and as applied to claim 8 above, Rosenqvist et al. teach of detecting focal lengths based on multiple image data(see claim 1 rationale), specifically of detecting a focal length for a peak value of contrast(see claim 1 rationale). However, Rosenqvist et al. do not explicitly teach of a plurality of image detecting areas adjacent to one another.

Omata et al. is similar to Rosenqvist et al. in that Omata et al. include a camera, which has a lens system with a driver for changing a focal length, and an image pickup device, see figures 1 and 2. Omata et al. is further similar in that data from the image sensor can be used for focusing(column 1, lines 45-65).

However, in addition to the teachings of Rosenqvist et al., Omata et al. teach of setting a plurality of image detecting areas adjacent to one another in obtained image data(see figure 5, column 3, lines 34-37),

calculating a partial focal length for each image detecting area(See column 3, lines 39-46, column 5, lines 8-18. A focus evaluation value(i.e. partial focal length) is calculated for each image detecting area.),

calculating the reliability of each image detecting area based on the position at which said peak value has been recorded moving across the multiple image data(The reliability of each image detecting area is determined by comparing the image detecting

area to the surrounding image detecting areas, column 5, lines 18-44. See figure 6, block g(3,4) is judged reliable and used for focal length detection if the pixels around it are of the same object distance. This position correlates to the position of the maximum focus evaluation value(i.e. peak value), column 5, lines 32-36.), and

selecting a focal length from a group consisting of said partial focal lengths(column 5, lines 18-44) and at least one given focal length(A predetermined(i.e. given) focal length may be used to detect a depth of field, column 3, line 67 through column 4, line 3.), said focal length selected based on the reliability and the evaluated values of each respective image detecting area(See column 5, lines 18-44. Each image detecting area is used to establish a focus evaluation value, and these values are compared to determine the reliability of the areas and use the appropriate one containing the main subject.).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to divide an image into a plurality of image detecting areas adjacent to one another and use the plurality of areas to determine focus values and reliability as taught by Omata et al., with the multiple image data captured by Rosenqvist et al. for the benefit of being able to accurately detect a compositional change in an image so that a continuous focus can be achieved on a main object which an operator intends to focus(Omata et al., column 1, line 66 through column 2, line 2).

Consider claim 11, and as applied to claim 9 above, Rosenqvist et al. teach of detecting focal lengths based on multiple image data(see claim 1 rationale), specifically

of detecting a focal length for a peak value of contrast(see claim 1 rationale). However, Rosenqvist et al. do not explicitly teach of a plurality of image detecting areas adjacent to one another.

Omata et al. is similar to Rosenqvist et al. in that Omata et al. include a camera, which has a lens system with a driver for changing a focal length, and an image pickup device, see figures 1 and 2. Omata et al. is further similar in that data from the image sensor can be used for focusing(column 1, lines 45-65).

However, in addition to the teachings of Rosenqvist et al., Omata et al. teach of setting a plurality of image detecting areas adjacent to one another in obtained image data(see figure 5, column 3, lines 34-37),

calculating a partial focal length for each image detecting area(See column 3, lines 39-46, column 5, lines 8-18. A focus evaluation value(i.e. partial focal length) is calculated for each image detecting area.),

calculating the reliability of each image detecting area based on the position at which said peak value has been recorded moving across the multiple image data(The reliability of each image detecting area is determined by comparing the image detecting area to the surrounding image detecting areas, column 5, lines 18-44. See figure 6, block g(3,4) is judged reliable and used for focal length detection if the pixels around it are of the same object distance. This position correlates to the position of the maximum focus evaluation value(i.e. peak value), column 5, lines 32-36.), and

selecting a focal length from a group consisting of said partial focal lengths(column 5, lines 18-44) and at least one given focal length(A predetermined(i.e.

given) focal length may be used to detect a depth of field, column 3, line 67 through column 4, line 3.), said focal length selected based on the reliability and the evaluated values of each respective image detecting area(See column 5, lines 18-44. Each image detecting area is used to establish a focus evaluation value, and these values are compared to determine the reliability of the areas and use the appropriate one containing the main subject.).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to divide an image into a plurality of image detecting areas adjacent to one another and use the plurality of areas to determine focus values and reliability as taught by Omata et al., with the multiple image data captured by Rosenqvist et al. for the benefit of being able to accurately detect a compositional change in an image so that a continuous focus can be achieved on a main object which an operator intends to focus(Omata et al., column 1, line 66 through column 2, line 2).

Consider claim 14, and as applied to claim 12 above, Rosenqvist et al. teach of obtaining a plurality of image data of each respective color data while changing the focal length of the optical system(The focal length is changed, and frames for three different colors are "grabbed" and stored. A frame for each color, wherein that color is in the optimal focus position, is then stored and processed. See column 4, line 60 through column 6, line 43, column 5, lines 42-50, column 6, lines 31-38.). However, Rosenqvist et al. do not explicitly teach of a plurality of image detecting areas adjacent to one another.

Omata et al. is similar to Rosenqvist et al. in that Omata et al. include a camera, which has a lens system with a driver for changing a focal length, and an image pickup device, see figures 1 and 2. Omata et al. is further similar in that data from the image sensor can be used for focusing(column 1, lines 45-65).

However, in addition to the teachings of Rosenqvist et al., Omata et al. teach of setting a plurality of image detecting areas adjacent to one another in obtained image data(see figure 5, column 3, lines 34-37),

calculating a partial focal length for each image detecting area(See column 3, lines 39-46, column 5, lines 8-18. A focus evaluation value(i.e. partial focal length) is calculated for each image detecting area.),

calculating the reliability of each image detecting area based on the position at which said peak value has been recorded moving across the multiple image data(The reliability of each image detecting area is determined by comparing the image detecting area to the surrounding image detecting areas, column 5, lines 18-44. See figure 6, block g(3,4) is judged reliable and used for focal length detection if the pixels around it are of the same object distance. This position correlates to the position of the maximum focus evaluation value(i.e. peak value), column 5, lines 32-36.), and

selecting a focal length from a group consisting of said partial focal lengths(column 5, lines 18-44) and at least one given focal length(A predetermined(i.e. given) focal length may be used to detect a depth of field, column 3, line 67 through column 4, line 3.), said focal length selected based on the reliability and the evaluated values of each respective image detecting area(See column 5, lines 18-44. Each image

detecting area is used to establish a focus evaluation value, and these values are compared to determine the reliability of the areas and use the appropriate one containing the main subject.).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to divide an image into a plurality of image detecting areas adjacent to one another and use the plurality of areas to determine focus values and reliability as taught by Omata et al., with the multiple image data captured by Rosenqvist et al. for the benefit of being able to accurately detect a compositional change in an image so that a continuous focus can be achieved on a main object which an operator intends to focus(Omata et al., column 1, line 66 through column 2, line 2).

11. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rosenqvist et al. in view of Yoshida et al.(US Patent 5,189,524).

Consider claim 16 and as applied to claim 15 above, Rosenqvist et al. do not explicitly teach of a warning device for indicating that image capturing is underway.

Yoshida et al. is similar to Rosenqvist et al. in that a camera is capturing image data.

However, in addition to the teachings of Rosenqvist et al., Yoshida et al. teach of a warning device for indicating that image capture is underway(see figures 6a, 6b, and 6c, "REC").

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to include an indicator as taught by Yoshida et al. in the image capturing apparatus taught by Rosenqvist et al. for the benefit of eliminating user confusion(Yoshida et al., column 1, lines 56-64).

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Albert H. Cutler whose telephone number is (571)-270-1460. The examiner can normally be reached on Mon-Fri (7:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ngoc-Yen Vu can be reached on (571)-272-7320. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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NGOC-YEN VU
SUPERVISORY PATENT EXAMINER